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WILEY, REIN & FIELDING

1776 K STREET, N. W.

WASHINGTON, D. C. 20006

(202) 429-7000

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June 12, 1997

WRITER'S DIRECT DIAL NUMBER

EX PARTE OR LATE FILED

(202) 828-4452

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

Re: *Ex Parte* Communication, CC Docket No. 94-102 RM 8143, *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Calling Systems*

Dear Mr. Caton:

The attached letter is a copy of a written *ex parte* communication given today to various members of the Commission staff. In accordance with Section 1.1206(a)(1) of the Commission's Rules, 47 C.F.R. § 1.1206(a)(1), I am hereby submitting two copies for inclusion in the public record. The letter lists all of the staff members who have been given a copy.

If you have any questions regarding this submission, please feel free to contact me at the number listed above.

Respectfully submitted,

Karen Kincaid

Karen A. Kincaid
Counsel for Motorola, Inc.

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MOTOROLA

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June 12, 1997

Mr. John Cimko
Chief, Policy Division
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W.
Room 5202
Washington, D.C. 20554

Via Hand Delivery

Mr. David Furth
Chief, Commercial Wireless Division
Wireless Telecommunications Bureau
Federal Communications Commission
2100 M Street, N.W., 7th Floor
Washington, D.C., 20554

**Re: *Ex Parte* Presentation, CC Docket No. 94-102, RM 8143, Revision of the
Commission's Rules To Ensure Compatibility with Enhanced 911 Calling
Systems**

Dear Messrs. Cimko and Furth:

Motorola, Inc. ("Motorola") is filing this *ex parte* letter to supplement the record in the above-captioned proceeding with respect to the appropriate definition of "covered SMR providers." As discussed in detail below, the existing definition encompasses many traditional SMR systems, *i.e.*, those providing predominantly dispatch service, that are technically incapable of complying with the Commission's 911 and E911 requirements.

Motorola believes that the definition of "covered SMR providers" must be reconsidered and revised so that the definition, as applied to the provision of 911 and E911 services, more appropriately recognizes the limitations of traditional SMR systems and exempts such operators from 911 and E911 obligations. Revision of the definition is also necessary for the Commission to achieve its goal of limiting "covered SMR" status to those SMR systems that "have significant potential to offer near-term direct competition to cellular and broadband PCS carriers."¹

¹ *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, FCC No. 96-264, ¶ 81 (rel. July 26, 1996)

Furthermore, the Commission's objective in this proceeding – to ensure that those customers that “clearly expect” access to 911 and E911 services in fact have such capabilities² – does not apply in the case of traditional SMR users.

Briefly by way of background, on June 12, 1996, the Commission adopted a Report and Order and Further Notice of Proposed Rule Making creating rules to govern availability of basic 911 services as well as the implementation of E911 for wireless offerings. The Commission's decision requires that: (1) by October 1, 1997, all cellular, broadband PCS, and covered SMR providers must transmit to the appropriate Public Safety Answering Point (“PSAP”) all 911 calls made from wireless mobile handsets that transmit a code identification, including calls initiated by roamers, without any blocking or validation procedures; (2) by October 1, 1997, all cellular, broadband PCS, and covered SMR providers must transmit calls from wireless mobile handsets that do not transmit a code identification to any appropriate PSAP that formally requests transmission of such calls; (3) by October 1, 1997, all cellular, broadband PCS, and covered SMR providers must be capable of transmitting calls by persons with speech or hearing disabilities through devices used in conjunction with or as a substitute for traditional wireless mobile handsets, *e.g.*, through the use of Text Telephone Devices (“TTY”) to local 911 services; (4) by October 1, 1997, all cellular, broadband PCS, and covered SMR providers must have initiated the actions necessary to enable them to relay a caller's Automatic Number Identification (“ANI”) and the location of the base station or cell site receiving a 911 call to the designated PSAP, and, by April 1, 1998, all cellular, broadband PCS, and “covered” SMR providers must have completed these actions; and (5) by October 1, 2001, all cellular, broadband PCS, and covered SMR providers must be able to identify and transmit the latitude and longitude of a mobile unit making a 911 call within a radius of 125 meters in 67% of all cases.

“Covered SMR providers” as defined in the 911/E911 context includes two classes of SMR licensees: (1) 800 MHz and 900 MHz SMR licensees that hold geographic area licenses; and (2) incumbent wide-area 800 MHz and 900 MHz SMR licensees that have obtained extended implementation authorizations either by waiver or by rule. Within each of these classes, “covered SMR providers” encompasses only those licensees “that offer real-time, two-way switched voice service that is interconnected with the public switched network, either on a stand-alone basis or packaged with other telecommunications services.”³

² *Id.*, ¶ 80.

³ *Id.*, ¶ 81. In formulating this definition, the Commission noted that, “[b]ecause they do not compete substantially with cellular and broadband PCS providers, local SMR licensees, offering mainly dispatch services to specialized customers in a more localized, non-cellular system configuration, as well as licensees offering only data, one-way, or stored voice services on an interconnected basis, would not be governed by these E911 requirements.” *Id.* The Commission also stated that, “[w]hile some traditional SMRs are treated as CMRS because they are interconnected to the public switched network, we do not intend to require them to implement E911.” *Id.*

The Commission's definition of "covered SMR providers" includes many traditional SMRs at 800 MHz and 900 MHz that have been granted extended implementation schedules, as well as numerous traditional 900 MHz SMRs that acquired geographic area licenses at auction. Significantly, the fact that an SMR licensee has an extended implementation schedule or a geographic area 900 MHz SMR license and has some limited ability to offer interconnected real-time, two-way switched voice service, does not mean that the licensee intends to up-grade its traditional analog system functionality. Moreover, as discussed in detail below, traditional SMR systems, including those that have been granted extended implementation or hold a geographic area license and have some limited ability to offer interconnected, real-time, two-way switched voice service, *do not* have the technical capability to provide 911 and E911 services.

To assist your staff in understanding how a traditional SMR system provides service interconnected with the public switched telephone network ("PSTN") and to illustrate the technical difficulties facing these operators with respect to fulfillment of 911 and E911 obligations, I have developed the following questions and answers. The traditional SMR system described in the questions and answers is a half-duplex or simplex system. Full duplex systems and "enhanced" SMR ("ESMR") systems also exist. Although full duplex systems do not have the push-to-talk type subscriber unit described in the questions and answers, the basic limitations discussed below are equally applicable to full duplex, traditional SMRs. This *ex parte* submission addresses traditional SMR systems only.⁴

Question 1: If a traditional SMR operator has a license indicating that it offers interconnected service, does that mean that each subscriber unit on the traditional SMR system can access emergency services by dialing "911"?

Answer: No. Because of capacity constraints, most traditional SMRs are specifically designed to limit the number of subscriber units enabled for interconnected calls. A subscriber unit must be enabled for interconnected calls to access emergency services by dialing "911" because 911 calls are routed by local exchange carriers ("LECs") to the PSAP. If a unit is not enabled for interconnected calls, it does not have the capability either to initiate or receive a call from the PSTN and, therefore, cannot be routed to a PSAP.

Even assuming that a traditional SMR subscriber unit is enabled for interconnected calls, if the traditional SMR system is simplex or half-duplex, the subscriber will not be able to reach emergency services simply by dialing "911." With a simplex or half-duplex system, the subscriber must first push the interconnect button on the unit. The subscriber will then get a dial tone if there is an available PSTN line at the SMR system's base station. At that point, the

⁴ Note that the capabilities of ESMR systems are substantially different from traditional SMRs because ESMRs generally have a Mobile Service Switching Center ("MSSC"), which provides the interface between the radio system and the PSTN. In the case of 911/E911, the MSSC sets up the directory number ("DN") and the location of the subscriber for ESMR 911 calls and sends the call directly to the 911 tandem.

subscriber must dial "911" and, when the called party answers, the subscriber must push the "talk" button on the unit and begin speaking. The SMR subscriber releases the "talk" button when listening. Thus, depending on system loading conditions, *e.g.*, all PSTN lines may be in use, a PSTN interface may not be available when a user with a unit enabled for interconnected calls attempts to dial "911." There is currently no means for implementing a "priority override" in a traditional SMR system to allow such access.

It is helpful to remember that the overarching purpose of most traditional SMR systems is the provision of dispatch communications. SMR systems are designed for dispatch communications for use by fleet users. Other features are secondary to the dispatch functions. Thus, most dispatch subscriber units do not have interconnect capability programmed into the unit. In addition, traditional SMR carriers that provide service interconnected with the PSTN severely limit the number of subscriber units (10 to 15%) programmed with interconnect capability. This is because during an interconnected call, a frequency channel and a PSTN line are captured and in use for the entire duration of the call, preventing or delaying other subscribers from being able to engage in dispatch communications on the radio channel or interconnected calls on the PSTN line. SMR carriers typically have only 5-20 channels for 350-2500 subscriber units and, therefore, to have viable service, must restrict communications to dispatch-type functions either by limiting the number of subscriber units with interconnect capability and/or by limiting the duration of interconnect calls through the use of time-out timers.

Question 2: Assuming that a traditional SMR subscriber has a unit programmed with interconnect capability and has reached a PSAP, is it possible for the PSAP dispatcher to call the subscriber back in case the call is disconnected?

Answer: No. To call an SMR subscriber unit, a landline caller typically needs the 7 or 10-digit number of one of the PSTN lines connected to the SMR system at the base station/repeater location as well as the subscriber unit's Private Identification Number ("PIN"). The PIN is a 3 to 7-digit number, depending on the switch configuration, and, in most cases, is not a PSTN number. If the PSTN caller connects to the base station/repeater location, *i.e.*, the line is not busy and the call rings through, the PSTN caller will get an acknowledge tone. At that point, the PSTN caller must dial the PIN of the subscriber unit.

The only information that the SMR system will be able to convey to the PSAP is the PSTN line number at the SMR system's base station/repeater location. The SMR system will not be able to convey the number of the subscriber unit. This is because the typical interconnection arrangement between a traditional SMR operator and a LEC is akin to the single line or simple multi-line interconnection of other business or residential subscribers that do not have special trunking arrangements. As a result, the traditional SMR operator has no control over the ANI or pseudo ANI information transmitted with the call; that information is provided by the LEC. Thus, even if traditional SMR systems could identify a calling subscriber unit – which they cannot – they are incapable of passing such information to the PSAP.

Likewise, only the location of the interconnect line from the dispatch base station will be passed on to the PSAP, not the location of the subscriber unit. In other words, if a traditional

SMR system has a base station/repeater in Washington, D.C., and a subscriber on the system places a 911 call from the Baltimore area, the call will come back to the base station/repeater in Washington before going to the PSTN. The PSTN Central Office will show the location of the subscriber unit as being in Washington, *i.e.*, the location of the base station/repeater, not Baltimore, because the interconnect line is connected to the base station in Washington.

Question 3: Continuing from Question 2, is it possible for a traditional SMR operator to alter its interconnection arrangement with a LEC so that a subscriber unit's PIN or other ANI information can be transmitted to the PSAP?

Answer: No. There is no way for a traditional SMR operator to alter its interconnection arrangement with the LEC to allow transmission of the unit's PIN or other ANI information without direct intervention from the dispatcher. This is because traditional SMRs do not have a Mobile Service Switching Center ("MSSC") to perform the necessary signaling requirements and protocols. In addition, it is not possible to add a unit's PIN or other ANI information because the logic and coding transmitted in the 911 telephone protocol exceed the technological capabilities of a traditional SMR system.

Question 4: Assuming that a traditional SMR user has a subscriber unit enabled for interconnected calls, can the SMR system transmit a call to a PSAP from a TTY device user?

Answer: No. TTY systems typically transmit Baudot tones or, for new units ASCII serial data. In either case, the communications require full duplex capability in order to perform necessary handshaking, flow control, and data correction. While push-to-talk offers two-way capabilities, the change-over from mobile-to-base to base-to-mobile transmission is user-initiated and therefore incompatible with automated communications.

Question 5: How do subscribers on a traditional SMR system request emergency services today?

Answer: The typical user of a traditional SMR is working in the field and has regular communications with a fleet dispatcher. If an emergency occurs, the user keys up the radio and calls the dispatcher. Because the dispatcher has been in communication with the unit, the dispatcher likely knows the location of the unit and can dispatch either another user on the fleet to render assistance or call for public emergency services, *i.e.*, E911, with specific information on circumstance and location because the dispatcher and the mobile user have talked. This can all occur today in a matter of seconds.

Based on these questions and their respective answers, Motorola believes that the definition of "covered SMR providers" formulated by the Commission is overly broad and will encompass many traditional SMR systems that lack the technical capability to comply with the agency's 911 and E911 requirements. Moreover, the users of traditional SMR systems do not expect their subscriber units to be capable of 911 and E911 functions as their communications are largely limited to the fleet dispatcher and other fleet members.

As mentioned, it is Motorola's view that the definition of "covered SMR providers" as applied to 911 and E911 services should exclude traditional SMR systems because the 911 and E911 requirements exceed the technical capabilities of these systems as well as their users' expectations. Unlike ESMRs, traditional SMRs do not have a Mobile Service Switching Center ("MSSC") to ensure a correct integration of the mobile service to the fixed (PSTN) network. Without an MSSC, the traditional SMR cannot comply with the required protocol to establish the 911/E911 interface and provide the correct signaling and switching information for a 911/E911 call.

Motorola recommends that the definition of "covered SMR providers" in this docket include only those "providers of Specialized Mobile Radio Services in the 800 MHz and 900 MHz bands that hold geographic area licenses . . . and offer real-time, two-way interconnected voice service using multiple base stations and an intelligent in-network switching facility that permits automatic, seamless interconnect call handoff among base stations" ⁵ This definition, proposed initially by AMTA, provides a more accurate description of the types of SMR systems capable of complying with the Commission's 911 requirements from a technical standpoint. Most importantly, this definition excludes traditional SMR systems that do not have the technical capability to meet the 911 and E911 obligations and whose subscribers do not expect such functionality.

⁵ See American Mobile Telecommunications Association, Inc. (AMTA), Petition for Declaratory Ruling, at Exhibit A (filed Dec. 16, 1996).

I hope that the foregoing information will be useful to you and the members of your staff. If you have any questions or need any additional information, please feel free to call me at (202) 371-6900.

Respectfully submitted,

Mary E. Brooner/kk

Mary E. Brooner
Senior Manager, Telecommunications Strategy and
Regulation
Motorola, Inc.

cc: Office of the Secretary/Docket file (2 copies)
The Honorable Reed E. Hundt
The Honorable James Quello
The Honorable Susan Ness
The Honorable Rachelle B. Chong
Ms. Rosalind K. Allen
Ms. Mika Savir
Mr. Jeffrey Steinberg
Ms. Rhonda Lein
Ms. Jill Lyon, AMTA
Mr. Michael S. Hirsch, Geotek Communications, Inc.
Ms. Laura Holloway, Nextel Communications, Inc.
Ms. Mary Madigan, PCIA